renal infection, assuring success for the ureterostomy operation to be performed later. It acts very much in the same manner as a cystotomy does in the two-stage prostatectomy. It should not be used in all patients, but in a carefully selected case it assures early drainage. If properly performed in the manner which I have described, little trauma, if any, is inflicted on the kidney.

There is no doubt that this beneficent operation has a place in relieving the suffering and misery accompanying incurable diseases of the bladder and uterus. Clinical observation and pathological study have demonstrated that it has no harmful effect on the kidney nor does it impair its secretory function. I recommend its earlier employment in indicated cases when there is a better chance of relieving suffering. Unquestionably, many lives could have been prolonged for months, if not for years, had this operation been properly performed before irreparable injury to the kidney had taken place.

SPASTIC CONTRACTION RING—A CAUSE OF POSTOPERATIVE INTESTINAL OBSTRUCTION*

REPORT OF CASE

By H. SPENCER HOYT, M. D.
Monterey

DISCUSSION *by John Homer Woolsey, M. D., San Francisco; Frederick H. Rodenbaugh, M. D., San Francisco; Walter C. Alvarez, M. D., Rochester, Minnesota.*

WITH the development of abdominal surgery, the possibility of postoperative intestinal obstruction has become an ever-present hazard attending the efforts of the surgeon. In spite of much study and discussion, the cause of postoperative vomiting following operations upon the gastro-intestinal tract is often still obscure. There is a fairly well recognized group of patients in which the obstruction is due to a definite mechanical factor such as the pressure of a band, or the strangulation of a loop of bowel in an internal hernia. There is, in addition, the group of patients in which vomiting is only a transient reaction to the anesthetic, and quickly subsides. Between these two fairly well defined groups there are a number of patients in which the diagnosis is obscure, and it is often difficult to state whether we have a definite obstruction or not. In a certain number of patients in this latter group the factor producing the obstruction is a localized spastic ring in the bowel.

REPORT OF CASE

A male patient, age forty-two, was operated upon for obstructive duodenal ulcer, a posterior gastroenterostomy with catgut sutures only being performed under ether anesthesia. Persistent vomiting followed the operation and a duodenal tube was passed to the stomach and allowed to remain in situ. Forty-eight hours after the operation no fluid was leaving the stomach. The patient was taken to the operating room and the sutures clipped with a pair of scissors, allowing the wound to reopen to the peritoneum. No anesthetic, either general or local, and no preoperative hypodermic was given. After clipping the catgut uniting the peritoneum a quick stroke or two of the finger separated the peritoneal edges. The patient was instructed to take some deep breaths, and the anastomosis presented in the upper part of the wound. Opposite the lower end of the suture line was seen a narrow white contraction ring in the jejunum, completely obstructing the bowel. The ring was approximately one-half a centimeter wide. As this white constricted ring in the bowel was watched, it was seen to relax for a fraction of a second at times and, as it relaxed, very superficial peristaltic rushes were seen to pass along the bowel in both directions, from the point of spasm. As the white ring relaxed, it became momentarily the normal pink color of the bowel, proving conclusively that it was a spastic ring and not a real constriction. The relaxation, however, was not of sufficient duration to permit the intestinal contents to go on. Infiltration of the abdominal wall with novocain was then carried out and the abdomen closed. The patient was put upon atropin for a few days and the stomach promptly began to empty, and he had no further trouble.

LITERATURE

A study of the literature bearing on this subject revealed a number of reports dealing with intestinal obstruction due to spastic rings. Engstad [1] in 1928 summarized the literature and reported six patients, observed during a surgical experience of thirty-five years. Three of these constrictions were stated to be in the jejunum, and in the other three the portion of the small intestine involved was not stated. In each instance, however, a firm white contraction ring was found as the cause of the obstruction. In one the ring relaxed after the bowel was lifted up into the wound, and in another the band relaxed its grip on the application of hot compresses. Both of these patients recovered. None, however, were obstructions following operations. Jiràsek [2] in 1925 reported four cases, and Köerte [3] in 1924 reported several cases of obstruction after gastroenterostomy in which a spastic obstruction of the jejunum was found, a considerable portion of the jejunum being involved. He does not mention the anesthetic used. He treated all these con-

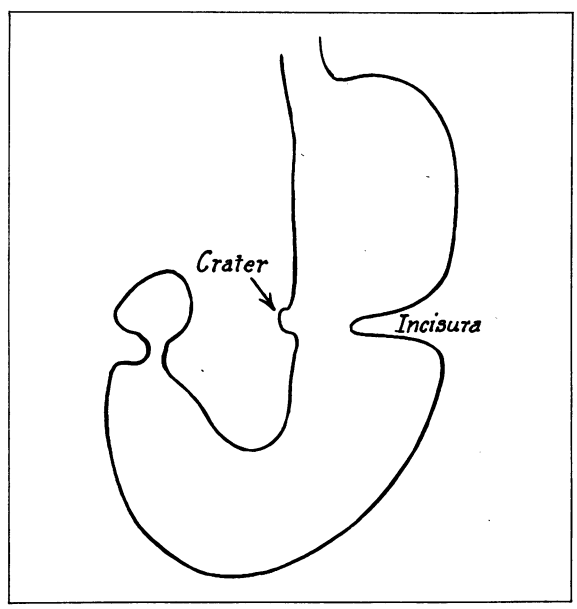

Fig. 1.—Schematic drawing showing typical incisure opposite gastric ulcer.

* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

ditions by making a new anastomosis, short-circuiting the spastic area. Van der Hoeven,[4] Schloffer,[5] Fromme,[6] Riess, Hauer,[7] and Florack[8] have also reported cases.

THEORIES AS TO CAUSATION

Jiràsek believes that degenerative lesions in the cells of Auerbach's plexus are one of the intramural causes of digestive tube spasms. Engstad,[1] however, from the observations made on his patients, concluded that the spasm was reflex, often originating in the reproductive organs. Alvarez[9] says: "One function of the plexus is probably to keep the muscle from being too active or from contracting down into a hard knot. It is well known to experimental zoölogists that when smooth muscle is cut off from its nervous connections, its tone is likely to rise to a point where rhythmic contractions are no more possible. The condition corresponds somewhat to that seen in the spastic paralyses of the voluntary muscles in man after cerebral hemorrhages. It may easily be that some of the contraction rings seen in spasmodic ileus are due, not to an excess of nervous stimulation, but to an absence of it."

It seems probable that the cause in some instances is reflex from distant organs and that in others it is due to local destruction or malfunctioning of the cells of Auerbach's plexus. The well-known spastic incisura frequently observed by the radiologists, opposite an ulcer on the lesser curvature of the stomach, may possibly be considered an example of this type of spasm. An interesting observation is that of Kirstein (quoted by Alvarez), who has shown that if the ileum be cut across and sewed up, food taken packed against the obstruction, but the dogs did not vomit and did not seem sick. If he pinched the bowel with an elastic ligature the food was held back far above the lesion and the dogs were very sick. The more irritating the cause of the obstruction the more pronounced the symptoms of a reversal of the intestinal gradient were. It would seem, on theoretical grounds, that a spastic ring would therefore be productive of marked clinical symptoms, which is true of the cases reported.

COMMENT

There seems to be a wide variation in the spastic areas both as to the amount of bowel involved and the degree or persistence of the spasm. While most of the cases reported describe only a narrow white ring of spasm, in a few several inches of bowel were involved. In some patients the spasm was relaxed by merely lifting the loop of bowel out of the abdomen, or by the application of hot cloths. In others the administration of atropin was necessary. In still others the spasm was resistant to atropin, and in some even to ether anesthesia.

CLINICAL SIGNIFICANCE

From the frequency with which spasm is observed by the radiologists in portions of the intestinal tract subject to satisfactory x-ray examination, *i e.*, the esophagus, stomach, colon, and possibly the duodenum, it would seem quite probable that the twenty or more feet of small intestine may be the seat of more spastic manifestations than we are at present able to demonstrate clinically. The observation here reported raises the question as to how frequently postoperative interference with gastro-intestinal motility is associated with localized spasm, particularly following operations in which the intestines are clamped or sutured, involving the possibility of trauma to the cells of Auerbach's plexus. The fact that many of these spastic rings are easily relaxed makes it particularly difficult for the surgeon to establish their presence with certainty. The administration of morphin and atropin or of full doses of novocain would undoubtedly relax many of them. Probably very few would persist after ether anesthesia. The spastic incisura opposite gastric ulcer, so frequently seen by radiologists, is rarely observed by the surgeon, probably because of the spasm-relaxing effects of the medication or anesthetics used. If operation is performed for postoperative or other obstruction, and the real offender in the shape of a spastic ring is not detected, the surgeon is apt to blame the trouble on some band or adhesion or perhaps even to perform another anastomosis.

In opening the abdomen for obstruction, it is therefore of prime importance to avoid antispasmodic drugs or anesthetics.

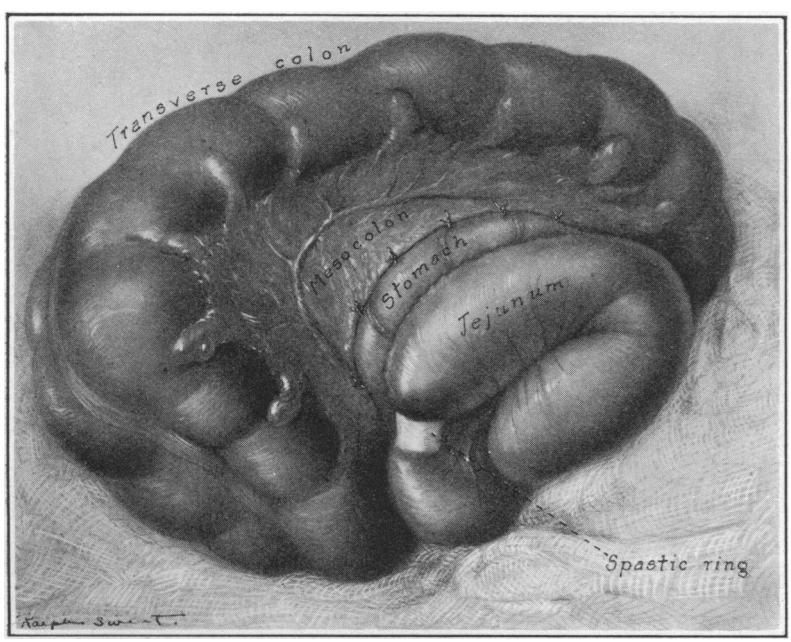

Fig. 2.—Spastic ring in jejunum following gastro-enterostomy.

If an operation has been recently performed, it will be possible in some instances to reopen the abdomen and see a few loops without any anesthetic. In many of these the obstructed loop will present in the wound. Where this is not possible, spinal anesthesia would seem to be the anesthetic of choice because of the ease of exploration which it gives. In case of a spastic ring due to the plexus being out of commission, we should, theoretically, expect no effect on the ring from spinal anesthesia. In case of a spasm due to distant reflex causes, spinal anesthesia might be expected to give relaxation.

CONCLUSION

Spastic contractions occur in the small intestine, both from reflex and direct causes, and are to be considered in case of acute obstruction. The effect of anesthetics and preoperative medication on the possibility of their detection is discussed.

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DISCUSSION

JOHN HOMER WOOLSEY, M. D. (490 Post Street, San Francisco).—The occurrence of a spastic contraction ring, as observed by Doctor Hoyt, is of tremendous interest. It is a known fact that one may have spastic contractions of the sphincteric regions and also in the stomach from some local or referred irritation. That it has been seen to occur in the jejunum is, therefore, of additional interest. The cause of such a contraction band is not clear. The most plausible explanation today is that it is due primarily to an unusual stimulation or a lowered threshold of stimulation of the vagus. The short reflex through the intrinsic nerve plexi of Meissner and Auerbach alone may be the cause. One observes also a similar contraction band at times when the blood supply to an intestinal loop is temporarily injured—again being a reflex of the intrinsic nerve plexi. In any event, as demonstrated by Doctor Hoyt in instances of nonprogression of the normal gastro-intestinal content, inhibitors of smooth muscle contraction, such as belladonna, atropin, or luminal, should be employed before resorting to further surgery.

FREDERICK H. RODENBAUGH, M. D. (490 Post Street, San Francsico).—Spasms of the small intestine, as observed and described by Doctor Hoyt, are of theoretical and clinical interest to the roentgenologist as an explanation of some of the acute abdominal symptoms.

The roentgenologist observes spasms of varying intensities in other portions of the gastro-intestinal tract and has observed the type of spasm described by Doctor Hoyt in the stomach, esophagus, and colon; but spasms of the small intestine because of the acute onset have not been observed in routine studies.

Doctor Hoyt's observation is most interesting, and it is not improbable that spastic contractions of less intensity and duration than those which produce the acute obstructive symptoms might be the cause of some of our subacute abdominal symptoms of unknown etiology.

Doctor Hoyt's report has been most instructive and should stimulate interest in this condition which, theoretically at least, should not be infrequent and may be the cause of some of the unrecognized acute postoperative abdominal symptoms.

WALTER C. ALVAREZ, M. D. (Mayo Clinic, Rochester, Minnesota).—This is an interesting case and well worth reporting. I have many reasons for suspecting that if the bowel had been opened in this person a patch of jejunitis or an actual ulcer would have been found in the neighborhood of the ring. In some persons the making of a gastro-enterostomy, with the pouring of acid gastric contents directly into the jejunum, causes considerable irritation of this part of the bowel. In a number of cases of gastrojejunal ulcer the history suggests strongly that the lesion formed before the patient left the hospital.

I know of a few cases in which a contracted ring similar in appearance to the one reported by Doctor Hoyt had to be excised before the patient could recover.

THE LURE OF MEDICAL HISTORY

CALIFORNIA'S FIRST MEDICAL HISTORIAN, VICTOR JEAN FOURGEAUD, A.B., M.D.*

PART I

By J. MARION READ, M. D.
San Francisco

THE circumstances which sent a cultured gentleman and distinguished physician across the plains to California before the gold-rush days of '49 might make a tale. And in the case of Doctor Fourgeaud they do. That this pioneer doctor was also a profound student of medical history renders the story of his life peculiarly appropriate for this occasion, inasmuch as the Stanford chapter of Alpha Omega Alpha has dedicated itself to the study of California medical history.

Victor J. Fourgeaud was born in Charleston, South Carolina, obviously of French lineage. The events of his early life are known to us chiefly by inference. Even the date of his birth is disputed. The historian, Eldredge,[1] records it as April 8, 1817. William Heath Davis [2] asserts that it was February 1, 1816, which seems correct, as it tallies with the fifty-nine years graven on his tombstone as his age at death in 1875.

When about ten years old he was taken to France, where he received much of his preliminary education. He returned to his birthplace,

*Second annual address delivered before Stanford Chapter of Alpha Omega Alpha, May 17, 1930.